

(6 percent) and the national average (9.2 percent). However, the total population of Chillicothe is very small, only 90. The percent of families below the poverty level in Chillicothe is comparable to that in several neighboring cities, including Ottumwa (10.9 percent) and Centerville (11.3 percent). The percent of families below the poverty level in Chillicothe is also quite comparable to that in Wapello County as a whole (9.4 percent).

Although the Proposed Action would occur in one of Iowa's poorer economic regions, nothing about the Proposed Action nor any demographic clusters would cause low-income residents to suffer impacts to a greater extent than would other residents. DOE believes that any impacts potentially resulting from the Proposed Action would not disproportionately impact minority or low-income populations. In any case, the analyses in Sections 4.1.1 through 4.1.10 conclude that the Proposed Action would not result in adverse human health or environmental impacts.

#### **4.2 Impacts from the No Action Alternative**

Under the No Action Alternative, DOE would not partially fund the Phase 2 testing facilities and activities described under the Proposed Action. Alternate funding sources for these activities would, in all likelihood, not be immediately available, and Phase 2 and Phase 3 testing of switchgrass as a biomass energy source at OGS would either be terminated or postponed indefinitely. The existing switchgrass processing and storage facilities would either be decommissioned and disassembled or converted to other uses. The potential long-term environmental benefits from the Proposed Action (less agricultural runoff, increased carbon dioxide sequestration, reduced sulfur oxide emissions) would not be realized. The goal of the CVBP to eventually use switchgrass as a fuel to replace a portion of the coal burned at OGS would be delayed or derailed.

### **5.0 CUMULATIVE IMPACTS**

CEQ regulations implementing the procedural provisions of NEPA require Federal agencies to consider the cumulative impacts of a proposal (40 CFR 1508.25(c)). A cumulative impact on the environment is the impact that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7). This type of assessment is important because significant cumulative impacts can result from several smaller actions that by themselves do not have significant impacts.

#### **5.1 OGS Plant**

The OGS is located in an agricultural area with no major existing or reasonably foreseeable industrial or commercial centers near it. Alliant Energy currently has no plans for expanding the plant or for other reasonably foreseeable future actions at the plant other than the possible future expansion of the co-fire testing infrastructure that would be installed under the Proposed Action (schematically illustrated in Figure 7). DOE considers the future expansion illustrated in Figure 7 to be a reasonably foreseeable future action that could result from the Proposed Action, although DOE has no plans to support a possible future expansion. DOE believes that the impacts at the OGS from a possible future expansion to commercial-scale operations would not result in significant cumulative environmental impacts at the OGS. Any cumulative impacts at or near the OGS due to a possible future expansion would be qualitatively identical and quantitatively similar to those described for the Proposed Action in Section 4.0. From an energy security perspective, decreased use of finite coal resources at OGS and potentially at other plants would represent a cumulative impact associated with a future commercial scenario.

## **5.2 Rathbun Lake Watershed**

If Phase 2 were to be successful, it could lead to commercial switchgrass operations, which could require the dedication of up to 200 square kilometers (50,000 acres) of CRP acreage to switchgrass production. DOE considers this to be a reasonably foreseeable potential future action that could result from the Proposed Action, although DOE has no plans to support possible future commercial agricultural operations. In contrast to the cumulative impacts at the OGS plant, DOE believes that the cumulative impacts that could occur in the Rathbun Lake Watershed area under a commercial scenario would be both quantitatively and qualitatively different from those associated with the agricultural activities under the Proposed Action. On the basis of the impacts described in Section 4.0, most if not all of the cumulative impacts that would result in the Rathbun Lake Watershed under a commercial scenario would be beneficial. It is not possible to quantify the cumulative impacts at this time, but qualitatively they would include, but would not necessarily be limited to, (1) decreased chemical runoff and soil erosion into Rathbun Lake, with a concomitant improvement in regional water quality, (2) enhanced habitat for bird species of management concern, (3) an economic and employment stimulus for the region, (4) increased soil sequestration of harmful greenhouse gases, and (5) possibly the stabilization and preservation of archaeological and historic sites.

The SHPO's comments and recommendations (see Appendix B) implicitly recognize the potential for cumulative impacts from commercial switchgrass agricultural operations when the Office recommends a programmatic agreement between SHPO and other agencies that would be involved with future switchgrass undertakings. DOE concurs in principle with the potential value of such an agreement but feels that it would be most appropriate for USDA and SHPO to be the signatories, because DOE has no plans to be involved in future commercial agricultural operations, whereas the CRP would be involved with such operations.

## **6.0 SHORT-TERM USES AND COMMITMENT OF RESOURCES**

As identified in Section 1.1, NEPA requires Federal agencies to (1) describe the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity, and (2) characterize any irreversible and irretrievable commitments of resources that would be involved should a proposed action be implemented.

The Proposed Action that is the subject of this EA would commit less than 6,200 square meters (1.5 acres) of previously disturbed OGS site property to the potential annual production of 35 MW of electrical energy while concurrently replacing 5 percent of the coal burned at OGS with switchgrass, a renewable bioenergy crop. This commitment could serve to demonstrate the economic viability and pollution reduction benefits of the use of a biomass feedstock to co-fire coal-burning plants. Quantitatively, these benefits would not be significant on a national or global scale, but, if found to be viable and sustainable, they could encourage more widespread use of biomass energy crops.

The Proposed Action would result in the commitment of approximately 180,000 tonnes (200,000 tons) of switchgrass and small quantities of steel, lumber, concrete, and other construction materials and machines. Use of the switchgrass is a commitment of resources in that the crop, or a stored supply, would be harvested and burned. However, in contrast to coal, the switchgrass is a renewable resource. Therefore, the commitment of this resource is not irreversible.

Upon decommissioning of the proposed new facilities, it would be possible to recycle or reuse some of the committed construction materials. Any remaining materials that could not be recycled or reused would be disposed of in a landfill, making their use an irreversible commitment. The fuel, oil, and maintenance costs committed to growing, harvesting, storing, transporting, processing, and co-firing the